

ABSTRACT

[0071] A vehicle with an actively adjustable axle system suitable for traveling over even or uneven terrain with a load is herein proposed. The vehicle includes a frame having a front end, a rear end, and a fore-aft axis extending therebetween; a body mounted to the frame; an adjustable axle assembly mounted to the frame such that the adjustable axle assembly is aligned substantially orthogonal to the fore-aft axis; a pair of wheels rotatably mounted on the ends of the adjustable axle assembly such that the wheels are aligned substantially in parallel and are thereby capable of facilitating moving interaction with the ground; at least one supplemental ground-interacting apparatus mounted to the frame such that each supplemental ground-interacting apparatus cooperates with the pair of wheels to thereby maintain clearance between both the frame and the body and the ground; an actuation system capable of mechanically adjusting the adjustable axle assembly to thereby adjust the fore-aft position of the pair of wheels relative to both the frame and the body; and an electronic controller mounted to the body and electrically connected to the actuation system. In such a configuration, the electronic controller is capable of communicating electrical control signals to the actuation system to thereby adjust the fore-aft position of the pair of wheels as necessary to actively maintain the fore-aft stability of the vehicle.